Council Agenda # _____
Meeting of March 23, 2010

Staff Report

DISCUSSION AND DIRECTION REGARDING A GREEN BUILDING ORDINANCE

Honorable Mayor and Council Members:

Summary
The Building and Utilities subcommittee of the Green Advisory Committee (GAC) is recommending adoption of an ordinance that would require green building practices in construction. The recommendations are fashioned after similar ordinances adopted by local city and county jurisdictions. The principle elements of the recommendations are the standards set forth by the organizations Build It Green (BIG) for residential construction, and Leadership in Energy and Efficiency Design (LEED) for commercial construction; a summary chart has been provided on page 3 of the report. Staff is seeking direction from the City Council on the creation of a Green Building Ordinance for possible future adoption.

Background
It is widely held that the conventional approach to building practices is unsustainable. According to the Department of Energy, buildings in the United States use 40% of the raw materials globally, create 30% of total greenhouse gas emissions, and produce 135 million tons of construction and demolition debris annually. Green building practices attempt to modify this approach to construction by:

I. Encouraging the conservation of natural resources;
II. Reducing waste in landfills generated by construction projects;
III. Increasing energy efficiency and lower energy usage;
IV. Reduce the operating and maintenance costs for buildings; and
V. Promote a healthier indoor environment.

In October of 2007, the City Council directed creation of the GAC to gather and explore ideas that would address such matters as conservation, sustainability, waste reduction, and green building codes. Five areas of concern were targeted by the GAC for future consideration, and subcommittees were organized for each of those areas. The responsibility for formulating recommendations for a green building ordinance fell to the Building and Utilities subcommittee. As many local city and county governments had already adopted such an ordinance, the subcommittee studied their composition to determine their suitability for Belmont. The subcommittee observed a reoccurring theme among the ordinances they reviewed—the use of the models established by the organizations Build It Green (BIG) and Leadership in Energy and Efficiency Design (LEED).

Build It Green

BIG is a professional non-profit organization, whose mission is to promote healthy, durable, energy- and resource-efficient buildings in California. The mechanism for achieving this is a checklist/point system that is organized by site and building component. In other words, there are categories for landscaping, foundation, building envelope, heating and cooling, lighting, finishes, etc. A point total is derived by the number of green building practices incorporated into the project. For example, with a new home, in order to be certified as GreenPoint Rated, a project must achieve a minimum score of 50 out of a possible 382 points; the certification is provided by an independent third party. For alteration and addition projects, a minimum score of 25 points is needed for an approach BIG calls *Elements,* and 50 points for a *Whole House* approach. BIG has a separate checklist for existing homes, new homes, and multi-unit dwellings. A 50 point score is relatively easy to achieve as approximately 33 points are awarded for compliance with the California Energy Efficiency Regulations. BIG is the organization most often cited in green building ordinances as the standard for residential construction.

LEED

Leadership in Energy and Efficiency Design is a program developed by the United States Green Building Council, a non-profit organization dedicated to promoting a sustainable future through cost-efficient and energy-saving green buildings. LEED has several rating systems that include Core & Shell, Commercial Interiors, Schools, Retail, Homes, etc. LEED certification is based on the following criteria: sustainable site, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, and innovation & design process. Using a point system similar to BIG, there are five levels of certification: No Rating (0-25 pts.), Certified (40-49 pts.), Silver (50-59 pts.), Gold (60-69 pts.), and Platinum (80 pts and above). LEED is the program most often cited in green building ordinances as the standard for commercial construction.

Specific Green Building Ordinance Recommendations

The Building and Utilities subcommittee is suggesting two tier requirements for residential construction and one trigger for commercial projects. For residential projects, the format is tied to the current threshold for Design Review found in Belmont's Zoning Ordinance:

- For residential projects under 400 ft^2 and interior alterations $25,000.00 or more, a minimum 25 BIG point tally is required using the *Elements* approach specific to the area of work or 50 BIG points using the *Whole House* approach. The plans are reviewed and the project is inspected by City staff for compliance. This recommendation does not require a third party certification (voluntary basis only). Originally, the committee had required independent 3rd party certification for all construction projects requiring a building permit. Staff believes that given the cost of such a certification, the requirement represents an unreasonable hardship on the applicant.

- For residential projects 400 ft^2 or larger and all new residences, a 70 BIG point minimum is required using the W*hole House* approach. The plans are reviewed by City staff, however certification by a 3rd party Green Point Rater would be required.

- Commercial projects 10,000 ft^2 or larger of new or altered space would require LEED Silver rating. Certification by a 3rd party LEED accredited professional would be required.

Summary Table of Committee Recommendations

Scope of Work	Point Level	Verification
• **Residential Projects** • **Additions less than 400 ft^2** • **Alterations $25, 000 or more**	**25 BIG points *Elements* or 50 BIG points *Whole House* approach**	**City review and inspection required**
• **New Residences** • **Residential Additions 400 ft^2 or greater**	**70 BIG points *Whole House* approach**	**City review and 3rd party inspection required**
• **Commercial Projects** • **10,000 ft^2** o **Tenant Improvement** o **New Constructions**	**LEED Silver Certification**	**3rd party review and inspection required**

Voluntary First Year—All green building requirements would be voluntary for one year after the ordinance was passed and mandatory thereafter. Originally, the committee had recommended a two year grace period, but in consideration of the crafting of other ordinances, and the established practices of green building techniques in the design and construction industry, one year appears appropriate.

Discussion

In addition to review of the local green building ordinances, the Building and Utilities subcommittee interviewed City staff to better understand the process of securing land use entitlements and building permits. The subcommittee observed a significant distinction between those projects requiring design review and those needing only a building permit. The projects under 400 ft^2 were often undertaken by owner-builders, the design team often did not include an architect, and engineering was frequently avoided in lieu of the prescriptive provisions of the California Building Code. The subcommittee determined the required green building practices should be less rigorous for projects of this scope.

On the other hand, projects that require design review almost always involve design professionals, including architects, engineers, and energy consultants. These are individuals who are either familiar with green building practices or capable of integrating the requirements with some degree of ease. Additionally, given the increased scope of these projects, any imposed green building measures could be blended into the design and specifications with proportionally smaller costs relative to the overall scope of the project. As such, the recommended required green building practices were increased for projects of this size.

Similarly, for commercial alterations or new construction that is 10,000 ft^2 or larger, typically these kinds of projects would involve sophisticated owners or tenants who value energy savings

design features and the long-term cost savings they represent. As such, LEED Silver requirements are appropriate.

Consistency

There has been a unified voice from the design and construction industry for local jurisdictions to approach green building ordinances with some degree of consistency. To that end, the County of San Mateo and the local cities of Redwood City, Daly City, San Mateo, Hillsborough, Portola Valley, and Brisbane have all passed ordinances that use BIG and LEED rating systems. For residential projects, BIG point totals vary among the jurisdictions from 50 points (Brisbane, County of San Mateo, Daly City, and Redwood City), to 70 and 75 points (San Mateo, Hillsborough, and Portola Valley); all cities having commercial property, including the County, require that either LEED Certified or Silver levels are attained. The recommendations submitted by GAC would put Belmont in the average with 25 to 50 required points for smaller residential projects and 70 required points for larger residential projects; the recommendation for commercial requirements also mirror neighboring communities.

Costs

Invariably a discussion of green building practices turns to the matter of cost. There is a common reaction among those unfamiliar with the subject that green buildings are more expensive than non-green buildings; numerous studies have shown this to be untrue. While initial costs may be slightly higher, operating costs over a period of time will result in savings. A study cited in the CALRecycle website (http://www.calrecycle.ca.gov/) indicates a cost increase of 6.5% on a 1540 ft^2 new home. However, cost recovery, and eventually savings, would be realized through rebates, decrease in energy use, water conservation, and reduced repairs; plus the less easily quantified, but no less important benefits of a healthy interior environment and a reduced carbon footprint. Several green building practices have no additional cost implication, such as building orientation on the lot, south facing windows, and drought tolerant landscaping.

The United States Green Building Council cites a study of commercial construction that shows a 2.1% cost increase for a LEED Silver rating. Again, savings in operating expenses easily recovers those costs over time and eventually result in a net benefit for the reasons stated above. The study goes on to say that an initial upfront investment of $100,000 to incorporate green building features into a $5 million project would result in a savings of at least $1 million over a 20 year period. Additionally, commercial occupancies would realize the benefit of healthier and more productive employees due to enhanced daylighting and a decrease in formaldehyde and volatile organic compound off-gassing (avoidance of the so-called "sick building" syndrome). Increasingly, for both residential and commercial projects, green building practices are not considered features that bring additional cost, but the building blocks of a sustainable design.

The discussion of costs must include the subject of 3rd party certifications; a requirement pursuant to the GAC recommendations for residential projects over 400 ft^2 and for commercial projects 10,000 ft^2 or greater. Currently, the going rate for GreenPoint certification is between $1,200 and $1,500 plus the $400 Build It Green certificate fee for a new home or *Whole House* approach. For commercial projects the process of verifying the LEED design is known as "commissioning". That cost is a function of the size of the project and ranges from 5% and 7.5% percent of construction costs; e.g. $500,000 in construction costs would result in $25,000 to

$37,500 commissioning costs. In addition to the benefits cited above, there is a belief that certifications result in a higher market value for the property.

Incentives
GAC is recommending incentives that would further encourage sustainable designs for construction. For the initial voluntary one year period, Belmont would offer a faster plan check turnaround time of 10-days versus the typical 14-day period. During the construction phase, all City required inspections would occur the "next day" versus the typical one or two days from the time of request to the day of inspection.

Outreach
Community Development staff conducted an owner-builder workshop on February 25, 2010. A portion of the seminar was devoted to green building practices and the GAC recommendations. As this was the first opportunity to discuss the matter with the public, local design professionals were also invited to attend. Opinions were sought and the reaction of the attendees' gauged by staff. By and large the concept of a green building ordinance was well received.

If directed by Council to proceed with the drafting of an ordinance, staff will make the following outreach efforts:

- For residential projects, BIG certification checklists will be issued to all information seekers and applicants that show automatic compliance with all California code items and with all city-landscaping ordinances.
- Staff will promote voluntary compliance with the San Mateo County Sustainable Green Building Standards.
- Staff will prepare and distribute contact information for online and in-person resources for green building practices during an applicant's first inquiry for construction permits or design review.

General Plan/Vision Statement
Providing direction and ultimately adopting a Green Building Ordinance for the City of Belmont furthers the City's Vision Statement as follows:

Natural Beauty
Our actions today preserve and enhance Belmont's beauty to make it even lovelier for our grandchildren.

Fiscal Impact
This is no fiscal impact associated with this discussion and direction item. If a green building ordinance were to be passed, pursuant to the GAC recommendations, staff will have to be trained and certified by the Build It Green organization.

Public Contact
1. This matter was placed on the agenda and posted as required by the California Government Code.

2. The green building ordinance recommendations were formulated and vetted in a public forum in the course of GAC meetings.
3. The green building ordinance recommendations were presented at an Owner-Builder Workshop on February 25, 2010.

Recommendation

Staff recommends that the City Council provide direction to proceed with creation of a green building ordinance consistent with the recommendations from the Green Advisory Committee.

Alternatives

1. Direct staff to return to the Council for further discussion and direction.
2. Direct any questions to staff for additional research and response.
3. Take no action.

Attachments

Exhibit A: BIG GreenPoint Rated Checklist
Exhibit B: LEED 2009 Commercial Interiors Rating System
Exhibit C: San Mateo County spreadsheet of local green building ordinances

Respectfully submitted,

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Attachment A

BIG GreenPoint Rated Checklist

GreenPoint Rated Checklist: Single Family

The GreenPoint Rated checklist tracks green features incorporated into the home. **A home is only GreenPoint Rated if all features are verified by a Certified GreenPoint Rater through Build It Green.** GreenPoint Rated is provided as a public service by Build It Green, a professional non-profit whose mission is to promote healthy, energy and resource efficient buildings in California.

The minimum requirements of GreenPoint Rated are as follows: verification of 50 or more points; Earn the following minimum points per category: Energy (30), Indoor Air Quality/Health (5), Resources (6), and Water (9); and meet the prerequisitesA.3.a (50% construction waste diversion), J.1 (Exceed Title 24 by 15%), and N.1 (Incorporate Green Point Rated checklist in blueprints).

The criteria for the green building practices listed below are described in the GreenPoint Rated Single Family Rating Manual. For more information please visit **www.builditgreen.org/greenpointrated**

Single Family New Home 3.7

Total Points Achieved: 0

GreenPointRATED

Enter Project Name	Points Achieved	Community	Energy	IAQ/Health	Resources	Water	Blueprint Page No.	Notes
		0	0	0	0	0		
A. SITE			Possible Points					
1. Protect Topsoil and Minimize Disruption of Existing Plants & Trees								
No a. Protect Topsoil from Erosion and Reuse after Construction	0	1				1		
No b. Limit and Delineate Construction Footprint for Maximum Protection	0					1		
No **2. Deconstruct Instead of Demolishing Existing Buildings On Site**	0				3			
3. Recycle Job Site Construction Waste (Including Green Waste)								
No a. Minimum 50% Waste Diversion by Weight (Recycling or Reuse) - *Required*	0				R			
No b. Minimum 65% Diversion by Weight (Recycling or Reuse)	0				2			
No c. Minimum 80% Diversion by Weight (Recycling or Reuse)	0				2			
4. Use Recycled Content Aggregate (Minimum 25%)								
No a. Walkway and Driveway Base	0				1			
No b. Roadway Base	0				1			
Total Points Available in Site = 12	0							
B. FOUNDATION			Points Available Per Measure					
1. Replace Portland Cement in Concrete with Recycled Flyash or Slag								
No a. Minimum 20% Flyash or Slag	0				1			
No b. Minimum 25% Flyash or Slag	0				1			
No **2. Use Frost-Protected Shallow Foundation in Cold Areas (C.E.C. Climate Zone 16)**	0				3			
No **3. Use Radon Resistant Construction** [*Points automatically granted when project qualifies for measure J3: ES with IAQ]	0			1				
4. Design and Build Structural Pest Controls								
No a. Install Termite Shields & Separate All Exterior Wood-to-Concrete Connections by Metal or Plastic Fasteners/Dividers [*Points automatically granted when project qualifies for measure J3: ES with IAQ]	0				1			
No b. All New Plants Have Trunk, Base, or Stem Located At Least 36 Inches from Foundation	0				1			
Total Points Available in Foundation = 8	0							
C. LANDSCAPING			Points Available Per Measure					
1. Construct Resource-Efficient Landscapes								
No a. No Invasive Species Listed by Cal-IPC Are Planted	0					1		
No b. No Plant Species Will Require Hedging	0				1			
No c. 75% of Plants Are California Natives or Mediterranean Species or Other Appropriate Species	0					3		
No **2. Use Fire-Safe Landscaping Techniques**	0	1						
3. Minimize Turf Areas in Landscape Installed by Builder								
No a. All Turf Will Have a Water Requirement Less than or Equal to Tall Fescue (< = 0.8 plant factor)	0					2		
No b. Turf Shall Not Be Installed on Slopes Exceeding 10% or in Areas Less than 8 Feet Wide	0					2		
No c. Turf is ≤33% of Landscaped Area (total 2 points)	0					2		
No d. Turf is ≤10% of Landscaped Area (total 4 points)	0					2		
No **4. Plant Shade Trees**	0					3		
No **5. Group Plants by Water Needs (Hydrozoning)**	0					2		
6. Install High-Efficiency Irrigation Systems								
No a. System Uses Only Low-Flow Drip, Bubblers, or Low-flow Sprinklers	0					2		
No b. System Has Smart (Weather-Based) Controllers	0					3		
No **7. Incorporate Two Inches of Compost in the Top 6 to 12 Inches of Soil**	0					3		
No **8. Mulch All Planting Beds to the Greater of 2 Inches or Local Water Ordinance Requirement**	0					2		
No **9. Use 50% Salvaged or Recycled-Content Materials for 50% of Non-Plant Landscape Elements**	0				1			
No **10. Reduce Light Pollution by Shielding Fixtures and Directing Light Downward**	0	1						
Total Points Available in Landscaping = 31	0							
D. STRUCTURAL FRAME & BUILDING ENVELOPE			Points Available Per Measure					
1. Apply Optimal Value Engineering								
No a. Place Rafters and Studs at 24-Inch On Center Framing	0					1		
No b. Size Door and Window Headers for Load	0					1		
No c. Use Only Jack and Cripple Studs Required for Load	0					1		
2. Use Engineered Lumber								
No a. Beams and Headers	0					1		
No b. Insulated Engineered Headers	0			1				
No c. Wood I-Joists or Web Trusses for Floors	0					1		
No d. Wood I-Joists for Roof Rafters	0					1		
No e. Engineered or Finger-Jointed Studs for Vertical Applications	0					1		
No f. Oriented Strand Board for Subfloor	0					1		
No g. Oriented Strand Board for Wall and Roof Sheathing	0					1		
3. Use FSC-Certified Wood								
No a. Dimensional Lumber, Studs and Timber: Minimum 40%	0					2		
No b. Dimensional Lumber, Studs and Timber: Minimum 70%	0					2		
No c. Panel Products: Minimum 40%	0					1		
No d. Panel Products: Minimum 70%	0					1		

Enter Project Name	Points Achieved	Community	Energy	IAQ/Health	Resources	Water	Blueprint Page No.	Notes
4. Use Solid Wall Systems (Includes SIPs, ICFs, & Any Non-Stick Frame Assembly)								
No a. Floors	0		2		2			
No b. Walls	0		2		2			
No c. Roofs	0		2		2			
5. Reduce Pollution Entering the Home from the Garage [*Points automatically granted when project qualifies for measure J3: ES with IAQ]								
No a. Tightly Seal the Air Barrier between Garage and Living Area	0			1				
No b. Install Garage Exhaust Fan OR Build a Detached Garage	0			1				
No **6. Design Energy Heels on Trusses (75% of Attic Insulation Height at Outside Edge of Exterior Wall)**	0		1					
No **7. Design Roof Trusses to Accommodate Ductwork**	0		1					
No **8. Use Recycled-Content Steel Studs for 90% of Interior Wall Framing**	0				1			
No **9. Thermal Mass Walls: 5/8-Inch Drywall on All Interior Walls or Walls Weighing more than 40 lb/cu.ft.**	0		1					
10. Install Overhangs and Gutters								
No a. Minimum 16-Inch Overhangs and Gutters [*Points automatically granted when project qualifies for measure J3: ES with IAQ]	0				1			
No b. Minimum 24-Inch Overhangs and Gutters	0		1					
Total Points Available in Structural Building Frame and Envelope = 36	0							
E. EXTERIOR FINISH			Points Available Per Measure					
No **1. Use Recycled-Content (No Virgin Plastic) or FSC-Certified Wood Decking**	0				2			
No **2. Install a Rain Screen Wall System**	0				2			
No **3. Use Durable and Non-Combustible Siding Materials**	0				1			
No **4. Use Durable and Non-Combustible Roofing Materials**	0				2			
Total Points Available in Exterior Finish = 7	0							
F. INSULATION			Points Available Per Measure					
1. Install Insulation with 75% Recycled Content								
No a. Walls and Floors	0				1			
No b. Ceilings	0				1			
2. Install Insulation that is Low-Emitting (Certified Section 01350)								
No a. Walls and Floors	0			1				
No b. Ceilings	0			1				
No **3. Inspect Quality of Insulation Installation before Applying Drywall** [*Points automatically granted when project qualifies for measure J3: ES with IAQ]	0		1					
Total Points Available in Insulation = 5	0							
G. PLUMBING			Points Available Per Measure					
1. Distribute Domestic Hot Water Efficiently (Additive, Maximum 7 Points)								
No a. Insulate Hot Water Pipes from Water Heater to Kitchen	0		1			1		
No b. Insulate All Hot Water Pipes	0		1			1		
No c. Use Engineered Parallel Piping	0					1		
No d. Use Engineered Parallel Piping with Demand Controlled Circulation Loop	0					1		
No e. Use Structured Plumbing with Demand Controlled Circulation Loop	0		1			2		
No f. Use Central Core Plumbing	0		1		1	1		
No **2. Install Only High Efficiency Toilets (Dual-Flush or ≤1.28 gpf)**	0					4		
Total Points Available in Plumbing = Total 11	0							
H. HEATING, VENTILATION & AIR CONDITIONING			Points Available Per Measure					
No **1. Design and Install HVAC System to ACCA Manual J, D, and S Recommendations** [*Points automatically granted when project qualifies for measure J3: ES with IAQ]	0		4					
2. Install Sealed Combustion Units [*Points automatically granted when project qualifies for measure J3: ES with IAQ]								
No a. Furnaces	0				2			
No b. Water Heaters	0				2			
No **3. Install Zoned, Hydronic Radiant Heating**	0			1	1			
No **4. Install High Efficiency Air Conditioning with Environmentally Responsible Refrigerants**	0	1						
5. Design and Install Effective Ductwork [*5b,d,&e are automatically granted when project qualifies for measure J3: ES with IAQ]								
No a. Install HVAC Unit and Ductwork within Conditioned Space	0			3				
No b. Use Duct Mastic on All Duct Joints and Seams	0			1				
No c. Install Ductwork under Attic Insulation (Buried Ducts)	0			1				
No d. Pressure Relieve the Ductwork System	0			1				
No e. Protect Ducts during Construction and Clean All Ducts before Occupancy	0			1				
No **6. Install High Efficiency HVAC Filter (MERV 6+)** [*Points automatically granted when project qualifies for measure J3: ES with IAQ]	0				1			
No **7. Don't Install Fireplaces or Install Sealed Gas Fireplaces with Efficiency Rating NOT Less Than 60% using CSA Standards**	0				1			
8. Install Effective Exhaust Systems in Bathrooms and Kitchens [*8a&c are automatically granted when project qualifies for measure J3: ES with IAQ]								
No a. Install ENERGY STAR Bathroom Fans Vented to the Outside	0				1			
No b. All Bathroom Fans Are on Timer or Humidistat	0				1			
No c. Install Kitchen Range Hood Vented to the Outside	0				1			
9. Install Mechanical Ventilation System for Cooling (Max. 4 Points)								
No a. Install ENERGY STAR Ceiling Fans & Light Kits in Living Areas & Bedrooms	0			1				
No b. Install Whole House Fan with Variable Speeds	0			1				
No c. Automatically Controlled Integrated System	0			2				
No d. Automatically Controlled Integrated System with Variable Speed Control	0			3				
10. Install Mechanical Fresh Air Ventilation System (Maximum 3 Points)								
No a. Any Whole House Ventilation System That Meets ASHRAE 62.2	0				2			
No b. Install Air-to-Air Heat Exchanger that meets ASHRAE 62.2 [*Points automatically granted when project qualifies for measure J3: ES with IAQ]	0			1	2			
No **11. Install Carbon Monoxide Alarm(s)** [*Points automatically granted when project qualifies for measure J3: ES with IAQ]	0				1			
Total Points Available in Heating, Ventilation and Air Conditioning = 30	0							

Enter Project Name	Points Achieved	Community	Energy	IAQ/Health	Resources	Water	Blueprint Page No.	Notes
I. RENEWABLE ENERGY			Points Available Per Measure					
No	1. Pre-Plumb for Solar Hot Water Heating	0		4				
No	2. Install Solar Water Heating System	0		10				
No	3. Install Wiring Conduit for Future Photovoltaic Installation & Provide 200 ft² of South-Facing Roof	0		2				
	4. Install Photovoltaic (PV) Panels							
No	a. 30% of electric needs OR 1.2 kW (total 6 points)	0		6				
No	b. 60% of electric needsOR 2.4kW (total 12 points)	0		6				
No	c. 90% of electric need OR 3.6 kW (total 18 points)	0		6				
	Total Available Points in Renewable Energy = 28	0						
J. BUILDING PERFORMANCE			Points Available Per Measure					
	1. Diagnostic Evaluations							
No	a. House Passes Blower Door Test [*Points automatically granted when project qualifies for measure J3: ES with IAQ]	0		1				
No	b. House Passes Combustion Safety Backdraft Test	0			1			
	2. Design and Build High Performance Homes - 15% above 2005 Title 24 - *Required*	0		≥30				
No	3. House Obtains ENERGY STAR with Indoor Air Package Certification - *Pilot Measure* (Total 45 points; read comment)	0			5	2		
	Total Available Points in Building Performance = 39	0						
K. FINISHES			Points Available Per Measure					
No	1. Design Entryways to Reduce Tracked in Contaminants	0		1				
	2. Use Low-VOC or Zero-VOC Paint (Maximum 3 Points)							
No	a. Low-VOC Interior Wall/Ceiling Paints (<50gpl VOCs (Flat) & <150gpl VOCs (Non-Flat))	0		1				
No	b. Zero-VOC: Interior Wall/Ceiling Paints (<5 gpl VOCs (Flat))	0		3				
No	3. Use Low VOC, Water-Based Wood Finishes (<250 gpl VOCs)	0		2				
No	4. Use Low-VOC Caulk and Construction Adhesives (<70 gpl VOCs) for All Adhesives	0		2				
No	5. Use Recycled-Content Paint	0			1			
	6. Use Environmentally Preferable Materials for Interior Finish: A) FSC-Certified Wood, B) Reclaimed, C) Rapidly Renewable, D) Recycled-Content or E) Finger-Jointed							
No	a. Cabinets (50% Minimum)	0			1			
No	b. Interior Trim (50% Minimum)	0			1			
No	c. Shelving (50% Minimum)	0			1			
No	d. Doors (50% Minimum)	0			1			
No	e. Countertops (50% Minimum)	0			1			
	7. Reduce Formaldehyde in Interior Finish (CA Section 01350)							
No	a. Subfloor & Stair Treads (90% Minimum)	0		1				
No	b. Cabinets & Countertops (90% Minimum)	0		1				
No	c. Interior Trim (90% Minimum)	0		1				
No	d. Shelving (90% Minimum)	0		1				
No	8. After Installation of Finishes, Test of Indoor Air Shows Formaldehyde Level <27ppb	0		3				
	Total Available Points in Finishes = 21	0						
L. FLOORING			Points Available Per Measure					
	1. Use Environmentally Preferable Flooring: A) FSC-Certified Wood, B) Reclaimed or Refinished, C) Rapidly Renewable, D) Recycled-Content, E) Exposed Concrete. *Flooring Adhesives Must Have <70 gpl VOCs.*							
No	a. Minimum 15% of Floor Area	0			1			
No	b. Minimum 30% of Floor Area	0			1			
No	c. Minimum 50% of Floor Area	0			1			
No	d. Minimum 75% of Floor Area	0			1			
No	2. Thermal Mass Floors: Floor Covering Other than Carpet on 50% or More of Concrete Floors	0		1				
No	3. Flooring Meets Section 01350 or CRI Green Label Plus Requirements (50% Minimum) [*Points automatically granted when project qualifies for measure J3: ES with IAQ]	0			2			
	Total Available Points in Flooring = 7	0						
M. APPLIANCES AND LIGHTING			Points Available Per Measure					
	1. Install Water and Energy Efficient Dishwasher							
No	a. ENERGY STAR (total 1 point)	0		1				
No	b. Dishwasher Uses No More than 6.5 Gallons/Cycle (total 2 points)	0				1		
	2. Install ENERGY STAR Clothes Washing Machine with Water Factor of 6 or Less							
No	a. Meets Energy Star and CEE Tier 2 requirements (modified energy factor 2.0, Water Factor 6.0 or less) (total 3 points)	0		1		2		
No	b. Meets Energy Star and CEE Tier 3 requirements (modified energy factor 2.2, Water Factor 4.5 or less) (total 5 points)	0				2		
	3. Install ENERGY STAR Refrigerator							
No	a. ENERGY STAR Qualified & < 25 Cubic Feet Capacity	0		1				
No	b. ENERGY STAR Qualified & < 20 Cubic Feet Capacity	0		1				
	4. Install Built-In Recycling Center and Composting Center							
No	a. Built-In Recycling Center	0			2			
No	b. Built-In Composting Center	0			1			
	Total Available Points in Appliances and Lighting = 12	0						
N. OTHER			Points Available Per Measure					
No	1. Incorporate GreenPoint Rated Checklist in Blueprints - *Required*	0			R			
No	2. Develop Homeowner Manual of Green Features/Benefits [*Points automatically granted when project qualifies for measure J3: ES with IAQ]	0		1	1	1		
	Total Available Points in Other = 3	0						
O. COMMUNITY DESIGN & PLANNING (maximum 20 points in this section)			Points Available Per Measure					
	1. Develop Infill Sites							
No	a. Project is Located in a Built Urban Setting with Utilities in Place for Fifteen Years	0	1			1		
No	b. Development is Located within 1/2 Mile of a Major Transit Stop	0	2					

Enter Project Name		Points Achieved	Community	Energy	IAQ/Health	Resources	Water	Blueprint Page No.	Notes
	2. Cluster Homes & Keep Size In Check								
No	a. Cluster Homes for Land Preservation	0	1			1			
	b. Conserve Resources by Increasing Density (1 pt for every 5 u/a greater than 10 u/a) Enter Project Density (In Units Per Acre)	0	2			2			
No	c. Home Size Efficiency	0				9			
	3. Subdivision Layout & Orientation to Improve Natural Cooling and Passive Solar Attributes	0	3	7					
	4. Design for Walking & Bicycling								
0	a. Pedestrian Access to Neighborhood Services within ½ Mile: 1) Community Center/Library; 2) Grocery Store; 3) School; 4) Day Care; 5) Laundry; 6) Medical; 7) Entertainment/Restaurants; 8) Post Office; 9) Place of Worship; 10) Bank: Enter number of services	0	2						
No	b. Development is Connected with A Dedicated Pedestrian Pathway to Places of Recreational Interest within 1/2 mile	0	1						
No	c. At Least Two of the Following Traffic-Calming Strategies: - Designated Bicycle Lanes are Present on Roadways; - Ten-Foot Vehicle Travel Lanes; - Street Crossings Closest to Site are Located Less Than 300 Feet Apart; - Streets Have Rumble Strips, Bulbouts, Raised Crosswalks or Refuge Islands	0	2						
	5. Design for Safety & Social Gathering								
No	a. All Home Front Entrances Have Views from the Inside to Outside Callers	0	1						
No	b. All Home Front Entrances Can be Seen from the Street and/or from Other Front Doors	0	1						
No	c. Orient Porches (min. 100sf) to Streets and Public Spaces	0	1						
	6. Design for Diverse Households								
No	a. All Homes Have at Least One Zero-Step Entrance	0	1						
No	b. All Main Floor Interior Doors & Passageways Have a Minimum 32-Inch Clear Passage Space	0	1						
No	c. Locate at Least a Half-Bath on the Ground Floor with Blocking in Walls for Grab Bars	0	1						
No	d. Provide Full-Function Independent Rental Unit	0	1						
	Total Achievable Points in Community Design & Planning = 20	0							
	P. INNOVATION (maximum 20 points in this section)			Possible Points					
	A. Site								
No	1. Reduce Heat-Island Effect - Install light-colored, high albedo materials (solar reflectance index >= 0.3) for at least 50% of site's non-roof impervious surfaces	0	1						
No	2. Build on Designated brownfield site	0	3						
	B. Foundation [*Points automatically granted when project qualifies for measure J3: ES with IAQ]								
No	1. Install a Foundation Drainage System	0				2			
No	2. Sealed and Moisture Controlled Crawlspace	0			2				
	C. Landscaping								
No	1. Meets Bay-Friendly Landscape Program Requirement (mutually exclusive with P.C.2)	0					4		
No	2. Meets California-Friendly Landscape Program Requirement	0					4		
	3. Rain Water Harvesting System (1 point for <350 gallons, 2 points for > 350 gallons)						2		
No	a. Less than 350 gallon capacity	0					1		
No	b. Greater than 350 gallon capacity	0					2		
No	4. Assess Site Climate, Exposure, Topography, and Drainage	0					1		
No	5. Perform a Soil Analysis	0					1		
No	6. Irrigation System Uses Recycled Wastewater	0					1		
No	7. FSC Certified, Recycled Plastic or Composite Lumber - Fencing: 70%	0				1			
	D. Structural Frame and Building Envelope								
	1. Design, Build and Maintain Structural Pest and Rot Controls								
No	a. Locate All Wood (Siding, Trim, Structure) At Least 12" Above Soil	0				1			
No	b. All Wood Framing 3 Feet from the Foundation is Treated with Borates (or Use Factory-Impregnated Materials) OR Walls are Not Made of Wood	0			1				
No	2. Use Moisture Resistant Materials in Wet areas of Kitchen, Bathrooms, Utility Rooms, and Basements [*Points automatically granted when project qualifies for measure J3: ES with IAQ]	0			1				
	3. Use FSC Certified Engineered Lumber (3 points maximum)								
No	a. Beams and Headers	0				1			
No	b. Insulated Engineered Headers	0				1			
No	c. Wood I-Joists or Web Trusses for Floors	0				1			
No	d. Wood I-Joists for Roof Rafters	0				1			
No	e. Engineered or Finger-Jointed Studs for Vertical Applications	0				1			
No	f. Roof Trusses: 100%	0				1			
	4. FSC Certified Wood								
No	a. Dimensional Lumber, Studs and Timber: 100%	0				2			
No	b. Panel Products: 100%	0				2			
	E. Exterior Finish								
No	1. Green Roofs (25% of roof area minimum)	0	1	1					
No	2. Flashing Installation Techniques Specified [*Points automatically granted when project qualifies for measure J3: ES with IAQ]	0				1			
	F. Insulation								
	G. Plumbing								
No	1. Graywater Pre-plumbing (includes washing machine at minimum)	0					1		
No	2. Graywater System Operational (includes washing machine at minimum)	0					2		
No	3. Innovative Wastewater Technology (Constructed Wetland, Sand Filter, Aerobic System)	0					1		
No	4. Composting or Waterless Toilet	0					2		
No	5. Install Drain Water Heat-recovery System	0		1					
	6. Install Water Efficient Fixtures								
No	a. Showerheads or Shower Towers Use <2.0 Gallons Per Minute (GPM) Total	0					1		
No	b. Faucets - bathrooms <1.5 gpm	0					1		
No	c. Faucets - Kitchen & Utility <2.0 gpm	0					1		
	H. Heating, Ventilation, and Air Conditioning								
No	1. Humidity Control Systems (only in California humid/marine climate zones 1,3,5,6,7)	0			1				

Enter Project Name		Points Achieved	Community	Energy	IAQ/Health	Resources	Water	Blueprint Page No.	Notes
	I. Renewable Energy								
No	1. Extraordinary Passive Solar Design (> 50% of load) That is Not Already Reflected in T-24 Modeling	0		5					
	J. Building Performance								
No	1. Test Total Supply Air Flow Rates	0		1					
	2. Energy Analysis Design Review								
No	a. Title-24 prepared and signed by CABEC Certified Energy Analyst	0		1					
No	b. Participation in utility incentive program	0		1					
	K. Finishes								
	1. Use Environmentally Preferable Materials for Interior Finishes								
No	a. Cabinets (80% minimum)	0				1			
No	b. Interior Trim (80% minimum)	0				1			
No	c. Shelving (80% minimum)	0				1			
No	d. Doors (80% minimum)	0				1			
No	e. Countertops (80% minimum)	0				1			
	L. Flooring								
No	1. Flooring Meets Section 01350 or CRI Green Label Plus Requirements (80% Minimum) [*Points automatically granted when project qualifies for measure J3: ES with IAQ]	0			1				
	M. Appliances								
	N. Other								
No	1. Homebuilder's Management Staff are Certified Green Building Professionals	0	1						
No	2. Detailed Durability Plan [*Points automatically granted when project qualifies for measure J3: ES with IAQ]	0				2			
No	3. Third-Party Verification of Implementation of Durability Plan	0				2			
0	4. Materials Sourced, Processed and Manufactured Within a 500 Mile Radius of the Home	0	1+						
No	5. Comprehensive Owner's Manual and Homeowner Educational Walkthroughs	0		1					
	6. Additional Innovations: Points to be assessed by Build It Green and GreenPoint Rater.								
No	a. Describe Innovation Here, and Enter Possible Points in Columns L-P	0							
No	b. Describe Innovation Here, and Enter Possible Points in Columns L-P	0							
No	c. Describe Innovation Here, and Enter Possible Points in Columns L-P	0							
No	d. Describe Innovation Here, and Enter Possible Points in Columns L-P	0							
No	e. Describe Innovation Here, and Enter Possible Points in Columns L-P	0							
No	f. Describe Innovation Here, and Enter Possible Points in Columns L-P	0							
No	g. Describe Innovation Here, and Enter Possible Points in Columns L-P	0							
No	h. Describe Innovation Here, and Enter Possible Points in Columns L-P	0							
	Total Achieveable Points in Innovation = 20	0							

Summary

		Community	Energy	IAQ/Health	Resources	Water
Total Available Points in Specific Categories		32+	125+	51+	103+	71+
Minimum Points Required in Specific Categories		0	30	5	6	9
Total Points Achieved	**0**	**0**	**0**	**0**	**0**	**0**

Project has not yet met the following recommended minimum requirements:

- *Total Project Score of At Least 50 Points*
- *Required measures:*
  - *-A3a: 50% waste diversion by weight*
  - *-J2: 15% above Title 24*
  - *-N1: Incorporate GreenPoint Rated Checklist into blueprints*
- *Minimum points in specific categories:*
  - *-Energy (30 points)*
  - *-IAQ/Health (5 points)*
  - *-Resources (6 points)*
  - *-Water (9 points)*

Enter Project Name	Points Achieved	Community	Energy	IAQ/Health	Resources	Water	Blueprint Page No.	Notes

Attachment B

LEED 2009 Commercial Interiors Rating System

LEED 2009 FOR COMMERCIAL INTERIORS

For Public Use and Display

USGBC Member Approved November 2008

PREFACE FROM USGBC

The built environment has a profound impact on our natural environment, economy, health, and productivity. Breakthroughs in building science, technology, and operations are now available to designers, builders, operators, and owners who want to build green and maximize both economic and environmental performance.

Through the LEED® green building certification program, the U.S. Green Building Council (USGBC) is transforming the built environment. The green building movement offers an unprecedented opportunity to respond to the most important challenges of our time, including global climate change, dependence on non sustainable and expensive sources of energy, and threats to human health. The work of innovative building professionals is a fundamental driving force in the green building moment. Such leadership is a critical component to achieving USGBC's mission of a sustainable built environment for all within a generation.

USGBC MEMBERSHIP

USGBC's greatest strength is the diversity of our membership. USGBC is a balanced, consensus based nonprofit with more than 18,000 member companies and organizations representing the entire building industry. Since its inception in 1993, USGBC has played a vital role in providing a leadership forum and a unique, integrating force for the building industry. USGBC's programs have three distinguishing characteristics:

Committee-based

The heart of this effective coalition is our committee structure, in which volunteer members design strategies that are implemented by staff and expert consultants. Our committees provide a forum for members to resolve differences, build alliances, and forge cooperative solutions for influencing change in all sectors of the building industry.

Member-driven

Membership is open and balanced and provides a comprehensive platform for carrying out important programs and activities. We target the issues identified by our members as the highest priority. We conduct an annual review of achievements that allows us to set policy, revise strategies, and devise work plans based on members' needs.

Consensus-focused

We work together to promote green buildings, and in doing so, we help foster greater economic vitality and environmental health at lower costs. We work to bridge ideological gaps between industry segments and develop balanced policies that benefit the entire industry.

Contact the U.S. Green Building Council
2101 L Street, NW
Suite 500
Washington, DC 20037
(800) 795-1747 Office
(202) 828-5110 Fax
www.usgbc.org

LEED 2009 FOR COMMERCIAL INTERIORS PROJECT CHECKLIST

Sustainable Sites — 21 Possible Points

☐ Credit 1	Site Selection	1-5
☐ Credit 2	Development Density and Community Connectivity	6
☐ Credit 3.1	Alternative Transportation—Public Transportation Access	6
☐ Credit 3.2	Alternative Transportation—Bicycle Storage and Changing Rooms	2
☐ Credit 3.3	Alternative Transportation—Parking Availability	2

Water Efficiency — 11 Possible Points

☑ Prerequisite 1	Water Use Reduction	Required
☐ Credit 1	Water Use Reduction	6-11

Energy and Atmosphere — 37 Possible Points

☑ Prerequisite 1	Fundamental Commissioning of Building Energy Systems	Required
☑ Prerequisite 2	Minimum Energy Performance	Required
☑ Prerequisite 3	Fundamental Refrigerant Management	Required
☐ Credit 1.1	Optimize Energy Performance—Lighting Power	1–5
☐ Credit 1.2	Optimize Energy Performance—Lighting Controls	1–3
☐ Credit 1.3	Optimize Energy Performance—HVAC	5–10
☐ Credit 1.4	Optimize Energy Performance—Equipment and Appliances	1–4
☐ Credit 2	Enhanced Commissioning	5
☐ Credit 3	Measurement and Verification	2-5
☐ Credit 4	Green Power	5

Materials and Resources — 14 Possible Points

☑ Prerequisite 1	Storage and Collection of Recyclables	Required
☐ Credit 1.1	Tenant Space—Long-Term Commitment	1
☐ Credit 1.2	Building Reuse—Maintain Interior Nonstructural Components	1-2
☐ Credit 2	Construction Waste Management	1-2
☐ Credit 3.1	Materials Reuse	1-2
☐ Credit 3.2	Materials Reuse—Furniture and Furnishings	1
☐ Credit 4	Recycled Content	1-2
☐ Credit 5	Regional Materials	1-2
☐ Credit 6	Rapidly Renewable Materials	1
☐ Credit 7	Certified Wood	1

Indoor Environmental Quality — 17 Possible Points

☑ Prerequisite 1	Minimum Indoor Air Quality Performance	Required
☑ Prerequisite 2	Environmental Tobacco Smoke (ETS) Control	Required
☐ Credit 1	Outdoor Air Delivery Monitoring	1
☐ Credit 2	Increased Ventilation	1
☐ Credit 3.1	Construction Indoor Air Quality Management Plan—During Construction	1
☐ Credit 3.2	Construction Indoor Air Quality Management Plan—Before Occupancy	1

☐ Credit 4.1	Low-Emitting Materials—Adhesives and Sealants	1
☐ Credit 4.2	Low-Emitting Materials—Paints and Coatings	1
☐ Credit 4.3	Low-Emitting Materials—Flooring Systems	1
☐ Credit 4.4	Low-Emitting Materials—Composite Wood and Agrifiber Products	1
☐ Credit 4.5	Low-Emitting Materials—Systems Furniture and Seating	1
☐ Credit 5	Indoor Chemical and Pollutant Source Control	1
☐ Credit 6.1	Controllability of Systems—Lighting	1
☐ Credit 6.2	Controllability of Systems—Thermal Comfort	1
☐ Credit 7.1	Thermal Comfort—Design	1
☐ Credit 7.2	Thermal Comfort—Verification	1
☐ Credit 8.1	Daylight and Views—Daylight	1-2
☐ Credit 8.2	Daylight and Views—Views for Seated Spaces	1

Innovation in Design — 6 Possible Points

☐ Credit 1	Innovation in Design	1-5
☐ Credit 2	LEED Accredited Professional	1

Regional Priority — 4 Possible Points

☐ Credit 1	Regional Priority	1-4

LEED 2009 for Commercial Interiors

100 base points; 6 possible Innovation in Design and 4 Regional Priority points

Certified	40–49 points
Silver	50–59 points
Gold	60–79 points
Platinum	80 points and above

Attachment C

San Mateo County Spreadsheet of Local Green Building Ordinances

San Mateo County Green Building Ordinance Status

City	Mandatory Point/ Certification Level	Qualifying Thresholds	3rd Party/ City Staff Rating	Enforcement Mechanism/Bonds	Incentives	Existing Homes Checklist Use	Contact	Notes	Adopted	Drafting	Researching
Atherton							Kathy Anderson- 650.752.0526	Does not have a GB Ordinance yet.		X	
Belmont							Damon DiDonato- 650.637.2908	Does not have a GB Ordinance yet. Has established a Green Advisory Committee for the Council that will discuss all things green.			X
Brisbane	50 pts Build It Green LEED Silver	Residential - 20 dwelling units or more Commercial - 10,000 SF	Green Building compliance official or building city staff	Compliance is required prior to issuance of a final certificate of occupancy.	No incentives- mandatory project	Program doesn't apply retroactively to existing homes	Ken Johnson- kjohnson@ci.brisbane.ca.us		X		
Burlingame											X
Colma							Andrea Ouse- 650.985.2590				X
County of San Mateo	50 pts Build It Green LEED for Homes certification	Residential - New construction or 50% valuation remodel/addition Commercial - 3,000 SF	3rd Party	$5,000 bond in exchange for temporary occupancy	75 pts- 30 day plan check 100 pts- 30 day plan check and 2 day turnaround on inspections	Build It Green checklist or a LEED for Homes checklist	Jeffery Liang- 650.599.1485		X		
Daly City	50 pts Build It Green LEED for Homes certification or equivalent	New Single and Multifamily Residential	3rd Party	2010 Voluntary 2011+ Mandatory prior to final Certificate of Occupancy	2010 Voluntary 2011+ Mandatory	N/A	Bruce Welch- 650.991.5786 Val Mandapat- vmandapat@dalycity.org	Three Step and Two Phase Program. Steps 1) Four Energy Efficiency Mandates 2) Minimum Points Required 3) Climate Calculator required Phases: 1 - 2010 Voluntary Checklist only 2) - 2011+ Mandatory 3rd Party Verified		X	
East Palo Alto							Guido Periscone- 650.853-3148	Does not have a GB Ordinance yet. Waiting to receive more direction from Planning Commission and Council.	X		
Foster City							Kristi Chappelle- 650.286.3213	At the research stage. Community Development and City Attorney are gathering information, attending seminars, and participating in efforts to develop consistency among jurisdictions.			X
Half Moon Bay							Steve Flint- 650.726.8252				X
Hillsborough	Complete Build it Green Checklist required on all projects. The points required are based on the size of the project	Residential - mandatory . Points required are based on the size of the project	The owner has two options 3rd party or city staff review and inspection.	The point requirements are link with finaling the permit. Fines are assessed for failure to meet points required.	Use Cert. Green staff to keep costs low for applicant. Deconstruction project are expedited. PV systems no cost permits Town council recognition/citation of appreciation.	Additions and substantial remolding projects require points	John Mullins- 650.375.7487	The ordinance has been adopted as of July 1, 2009	X		
Menlo Park							Ron LaFrance- 650.330.6723	Working on developing a Green Building Code within their Carbon Action Plan.			X
Millbrae							David Petrovich- 650.259.2443	Education brochures and ad hoc "encouragement" from the Planning Commission on specific projects			X
Pacifica							Christina Horrisberger- 650.738.7444	Drafting an ordinance, presenting to Planning Commission in January, City Council in February		X	
Portola Valley	70 pt range Build It Green- New Homes 50 pts Build It Green for major remodels (use a graduated point system like Palo Alto) LEED Silver	Not set on a threshold (limited commercial development, as well as project size)	3rd Party	N/A	Town council recognition/citation of appreciation.	Build it Green Elements Checklist	Tom Vlasic- 650.324.8600	Voluntary ordinance since March, waiting for Build it Green revision to make recommendation to move to mandatory		X	
Redwood City	50 pts (or future minimum level) Build It Green LEED "Certified" level	Residential - New Buildings or additions greater than 1,000 SF Commercial – "1,000 "SF	City staff review and inspection for projects under 10,000 SF. No 3rd party unless applicant wants certification.	Construction in accordance with approved plans/ no bonds	City staff review rather than costs and inspection delays due to 3rd party.* *projects under 10,000 SF	Undecided- Discussion on how to apply checklist to existing buildings and additions less than 1,000 ft²	John Latorra- 650.780.7360	City Council has adopted the Ordinance. Waiting for the Ca Energy Commission finding approval	X		
San Bruno							Gary Lepori- 650.616.7020	Gathering information. Some planners are attending BIG Green Point Rater Certification.			X

San Carlos	CA State Code	CA State Code	CA State Code	CA State Code	CA State Code	CA State Code	Christopher Valley - 650.802.4262	Will be using the new State Green Building Code			X
San Mateo	Residential New: 75 pts BIG. Remodels/Additions: GPR Whole House or 25 w/Elements Commercial: LEED Silver	All New Residential Construction. >$10,000 valuation for additions and remodels Commercial - >10,000 SF	3rd Party	none	none	Build It Green checklist	Stephen Lau, slau@cityofsanmateo.org or Ken Chin kchin@cityofsanmateo.org 650.522.7211	Mandatory ordinance will be in effect in January 1st	X		
South San Francisco							Gerry Beaudin- 650.829.6670 Phil Perry- 650.829.6670	Has a draft Ordinance being reviewed by staff. Looking more into LEED, because running out of residential space.			X
Woodside							Deborah Mallison- 650.851.6790	Gathering information. Hope to start mid next year.		X	
Joint Recommendations	GPR or Lead Certified	New Construction: green standards apply to everything. Escape clause encouraged. Existing Buildings: Community determined	3rd party or city process	Post bond at end of process in order to obtain occupancy permit if green standards are not yet met							